Key Findings: Canada, England, Japan, Scotland, United States

In 1994–95,[5] teachers of fourth-grade mathematics in the United States most frequently reported using two organizational approaches in every mathematics lesson: students working individually with assistance from the teacher; and working together as a class, with the teacher teaching the whole class. Fifty-five percent of U.S. students had a mathematics teacher who reported using the first approach and 54 percent of students had a mathematics teacher who reported using the second (figure 8a).

In Scotland and England, students working individually with assistance from the teacher was the approach reported more frequently than any of the other methods. Forty-four percent of Scottish fourth-graders and 55 percent of students in England had a mathematics teacher who reported using this approach (figure 8a).

Fourth-grade mathematics teachers in Japan, in contrast, reported using whole-class instruction more frequently than other organizational approaches. Seventy-eight percent of Japanese fourth-graders had a mathematics teacher who reported working together as a class, with the teacher teaching the whole class. However, one half of Japanese students had a mathematics teacher who reported that they work together as a class, with students responding to one another, as an organizational approach (figure 8a).

In 1994–95, whole-class instruction and students working together as a class with students responding to one another were the two most frequently reported organizational approaches used in science instruction in the United States. Forty-seven percent of fourth-grade students had a science teacher who reported using the first approach and 35 percent the second. In contrast, 20 percent of U.S. fourth-graders had a science teacher who reported that students work individually, with assistance from the teacher (figure 8b).

Japanese fourth-grade students had science teachers who also reported the use of whole class instruction and students working with students responding to one another most frequently. Sixty-eight percent of Japanese fourth-graders had a science teacher who reported using the first approach and 51 percent the second (figure 8b).

Definition and Methodology

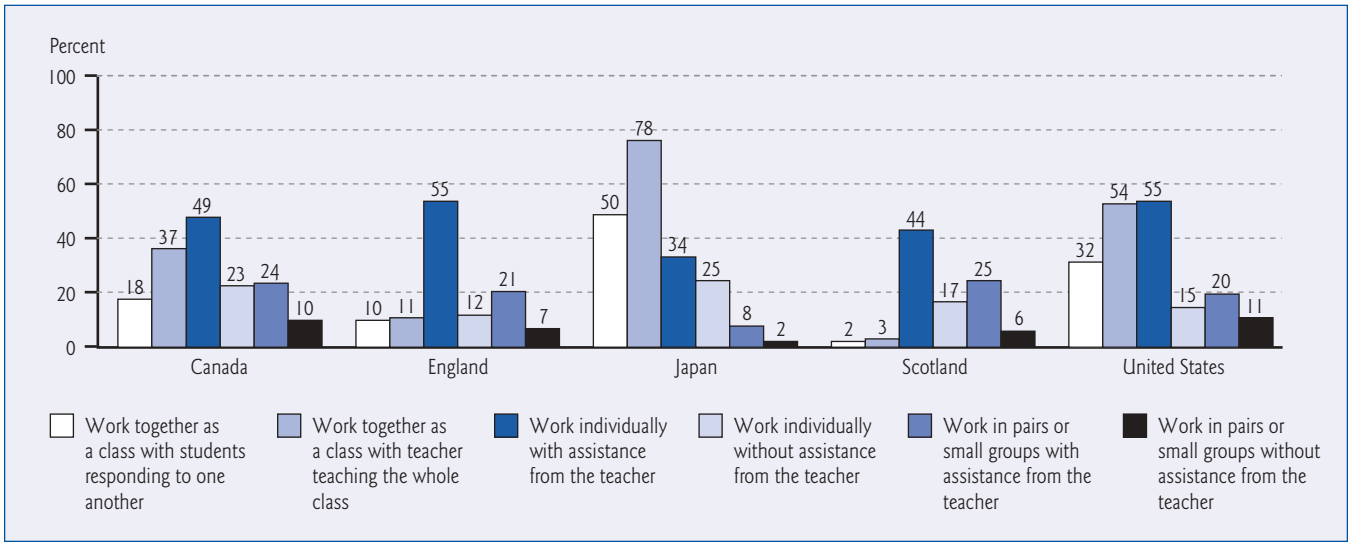
Percent of fourth-grade students participating in the Third International Mathematics and Science Study whose mathematics and science teachers reported using various organizational approaches in their lessons. In some cases, these may be the same teacher.

The TIMSS study included the fifth year of formal schooling in England and Scotland in 1994–95.

Whole class instruction is a strategy in which the class works together, with the teacher teaching the whole class.

[5]Fourth-grade data are not available in the Third International Mathematics and Science Study 1999 report and will be available in the Trends in International Mathematic and Science Study 2003 report.

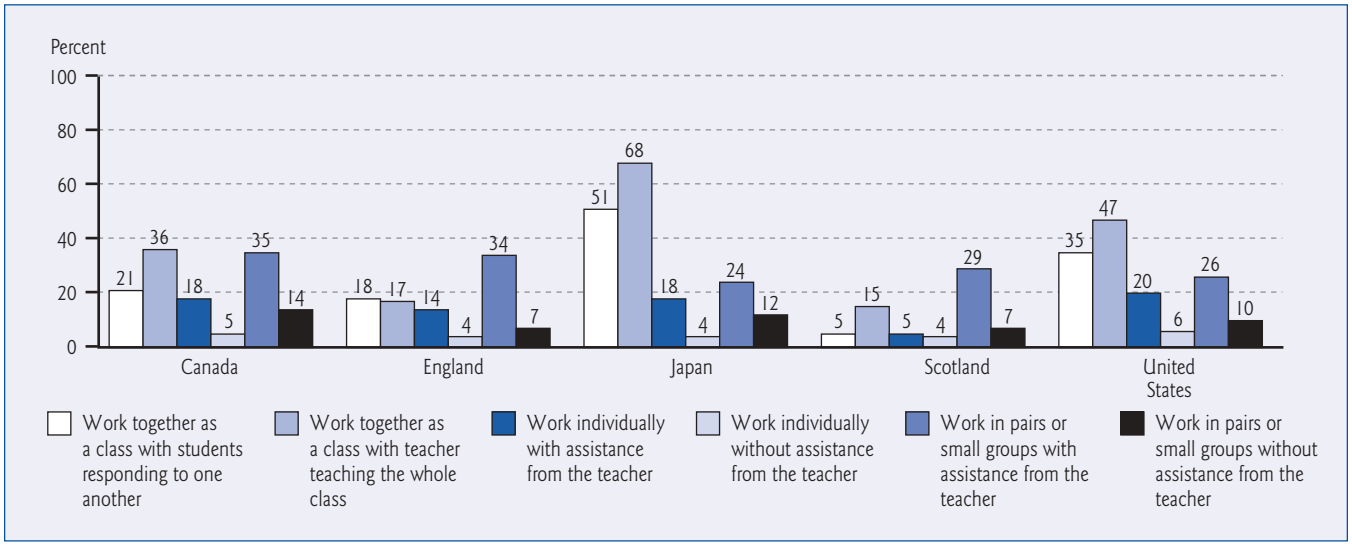
Figure 8a. Percentage of fourth-grade students whose mathematics teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95



NOTE: Values may not add to 100 percent because teachers could respond to as few or as many categories as they wished and because the only response category displayed here is "most or every lesson." Fourth-grade in most countries; Year 5 in England and Scotland. In the United States, teacher response data available for 70–84 percent of students. The United States also did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures. Some organizational approaches are excluded in the figure.

SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.5.

Figure 8b. Percentage of fourth-grade students whose science teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95



NOTE: Values may not add to 100 percent because teachers could respond to as few or as many categories as they wished and because the only response category displayed here is "most or every lesson." Fourth-grade in most countries; Year 5 in England and Scotland. In Scotland and the United States, teacher response data were available for 70–84 percent of students. The United States also did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures. Some organizational approaches are excluded in the figure.

SOURCE: International Association for the Evaluation of Educational Achievement, *Science Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.3.

Table A-8a. Percentage of fourth-grade students whose mathematics teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95

Country	Work together as a class with students responding to one another	Work together as a class with the teacher teaching the whole class	Work individually with assistance from the teacher	Work individually without assistance from the teacher
Canada	18 (3.5)	37 (4.3)	49 (4.4)	23 (3.5)
England	10 (3.3)	11 (2.3)	55 (5.2)	12 (3.1)
Japan	50 (4.6)	78 (4.4)	34 (4.1)	25 (3.5)
Scotland[1]	2 (1.0)	3 (1.5)	44 (4.5)	17 (3.1)
United States[1,2]	32 (3.5)	54 (4.4)	55 (3.9)	15 (2.5)

[1] Teacher response data were available for 70–84 percent of students.
[2] Country did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures.
NOTE: Fourth-grade in most countries; year 5 in England and Scotland. Values may not add to 100 percent because teachers could respond to as many categories as apply. Standard errors are in parentheses.
SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.5.

Table A-8b. Percentage of fourth-grade students whose science teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95

Country	Work together as a class with the students responding to one another	Work together as a class with the teacher teaching the whole class	Work individually with assistance from the teacher	Work individually without assistance from the teacher
Canada	21 (3.4)	36 (5.5)	18 (3.2)	5 (1.3)
England	18 (3.8)	17 (3.5)	14 (2.7)	4 (1.5)
Japan	51 (4.4)	68 (4.4)	18 (3.2)	4 (1.7)
Scotland[1]	5 (2.0)	15 (3.1)	5 (1.7)	4 (1.8)
United States[1, 2]	35 (3.8)	47 (3.6)	20 (3.3)	6 (1.7)

[1] Teacher response data were available for 70–84 percent of students.
[2] Country did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures.
NOTE: Fourth-grade in most countries; year 5 in England and Scotland. Values may not add to 100 percent because teachers could respond to as many categories as apply. Standard errors are in parentheses.
SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.3.